2020 VISIONS: HOW FAST GROWTH CAN REDUCE POVERTY AND INCREASE TRADE, 1995-2020

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2020 Visions:

Creating Tigers, Cutting Poverty,
and Increasing Trade, 1995-2020

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Abstract:

Countries can rise from poverty only if their own economic policies and institutions favor growth. The authors contrast two scenarios of growth, poverty, and trade for 12 developing countries. Sustained policy reforms might, for these 12 countries, double per capita incomes, save 500 million from extreme poverty, and at least double their imports of goods and services from the U.S., versus a bleak future where policy reforms are not adopted.

Designed for an audience of both economists and policy-makers, the study underscores the importance of sustained policy reform for all developing countries.

This paper is the sixth in a series of Economist Working Papers produced by the USAID's Economic Growth Center. *Alan Batchelder is an USAID Economist with the Economic Growth Center. Tyler Holt is an Economic Analyst employed by DevTech Systems, Inc.*

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2020 VISIONS: HOW FAST GROWTH CAN REDUCE POVERTY AND INCREASE TRADE, 1995-2020

Executive Summary Poor countries do not need to remain poor. But countries can rise from poverty only if their own economic policies and institutions favor rapid and sustained growth in output.

In 1995, two Harvard professors reported new evidence that there is one kind of economic policy that produces rapid growth in developing nations while the absence of such policy produces slow growth. Jeffrey Sachs and Andrew Warner considered the growth of 89 countries between 1970 and 1989. Of the 89, 15 maintained policies that kept their economies always open to international trade and competitiveness; the policies of the other 74 kept their economies always or sometimes closed.

The 74 with always or sometimes closed economies averaged per capita growth rates of 0.7% a year. The nations with always open economies averaged per capita growth rates of 4.5% a year. Following extensive analysis of those experiences, Sachs and Warner concluded that "convergence [between the per capita incomes of low and of high income countries] can be achieved by all countries, even those with initial low levels of skills, as long as they are open [to private competition] and integrated in the world economy."

This paper contrasts two scenarios of economic growth, poverty reduction, and trade growth over the 25 years, 1995-2020, for 12 countries. The 12 were chosen because they account for some 80% of all the people (outside of China) who live in "extreme poverty", the people who survive on the local equivalent of less than one U.S. dollar a day. Eleven of these countries were among the 74 with closed economies, slow output growth, and poverty increases during the two decades, 1970-1989.

The first scenario projects outcomes in 2020 if, after 1998, the 12 pursue "closed" economic policies once typical of the 74, 1970-1989, and average a growth rate of only 0.7% per capita per year. The other scenario builds on the assumption that, with appropriate policies taking hold after 1998, all countries can achieve convergence by raising their per capita incomes toward those of the high-income countries. Here, we project 2020 outcomes assuming that each of the 12 nations adopts and maintains the openness of the 15 during 1970-1989 and does achieve, after 1998, the growth rates that, for the 15, averaged 4.5% per capita per year.

We project that, without sustained policy reform, the number of extremely poor in the 12 will **rise** from some 700 million in 1995 to 775 million in 2020 while, with sustained policy reform, the number of extremely poor will **fall** to 296 million in 2020. The contrast is shown in Figure 1 with the policy contrasts taking place after 1998. In this projection, policy reform and the resulting rapid growth save 479 million people, nearly two-thirds of the 775 million alternatively poor in 2020, from extreme poverty in 2020. *No other kind of poverty-reduction program could remotely approach this potential achievement.*

We project that, without sustained policy reform and rapid growth, U.S. merchandise exports to the 12 will rise from $27 billion in 1995 to $73 billion, a 170% increase, in 2020 while, with reform, U.S.

merchandise exports will rise to $144 billion, a 435% increase, in 2020. This contrast is shown in Figure 2. Similarly, for the four of the twelve for which baseline data are available, without sustained policy reform and rapid growth, U.S. nonfactor service exports will grow from $8 billion in 1995 to only $29 billion, a 250% increase, by 2020. With sustained refrom and rapid growth, however, U.S. service exports will grow to $53 billion, a 530% increase, by 2020.

To assure readers that acceleration is a practical possibility for former slow growers, we end with a review of the past experience of the United States and Europe from 1820 to 1960 and of the nations of the Pacific Rim since 1960. In 1820, most of the people in every nation in the world were poor, and in most regions, most were extremely poor. But since 1820, the now-industrialized nations achieved sustained, broadly-based growth which dramatically reduced the extent and degree of poverty. Since 1960, other countries, formerly stagnant or slow growers, have become fast growers, tigers even, some since 1960 with growth rates well above 4.5% per capita. Others can grow equally fast, or faster -- but only if they provide, not always sufficient, but absolutely necessary, a suitable policy environment.

We project that rapid economic growth can add $2,300 billion, in 1994 prices, to the output of the 12 nations in 2020. Such an increase in output would improve the living conditions of the poor and former poor of the 12 to an extent far surpassing the benefits possible even if all official development assistance, now running some $60 billion a year, were used to provide direct benefits to the poor.

We conclude that, insofar as possible, USAID should concentrate its resources on policy dialogue and technical assistance encouraging and assisting the policy and institutional reforms that will accelerate output growth poverty reduction, and trade growth in India, Bangladesh, and all the other low-income nations. The further implication of this conclusion is that USAID's effectiveness in promoting faster policy reform, output growth, poverty reduction, and U.S. export growth can be greatly facilitated and strengthened by overt support from the State Department and the U.S. Congress.

2020 VISIONS: HOW FAST GROWTH CAN REDUCE POVERTY AND INCREASE TRADE, 1995-2020

Introduction: Our Purpose and Order of Presentation

Poor countries do not need to remain poor. But countries can rise from poverty only if their own economic policies favor rapid and sustained growth in output.

In what follows, we present two contrasting futures for 12 low-income countries selected because they contain 80% of the non-Communist world's "extremely poor" people -- the people who subsist on the local equivalent of less than one U.S. dollar a day. In one future, production and trade grow slowly in each of the 12, and the number of extremely poor people actually increases. In the contrasting future, production and trade grow rapidly, and the number of extremely poor people drops sharply.

Our premise is that the economic policies of each country will prove the principal determinant of the growth rate and of what happens to the number of poor people in that country. So we begin our story by explaining the basis for that premise and go on in the following sequence:

First, the premise: we base it on many researchers' findings that each nation's economic policies are the primary determinants of its growth rate. Here, we will explain that the particular policy and growth contrasts assumed in this paper are based on the observations of two Harvard economists who looked closely at the actual growth experiences of 89 developing countries between 1970 and 1989. They found that one kind of economic policy in 74 of these countries produced per capita income growth averaging only 0.7% a year while a distinctly different kind of economic policy in the other 15 countries produced per capita income growth averaging 4.5% a year over the two decades, 1970-1989.

Next, we estimate total output, population, output per capita, incidence of poverty, numbers of extremely poor people, and merchandise imports (total and from the U.S.) in the year 2020, for the chosen 12 countries, individually and taken together, if after 1998 their governments choose policies that constrain per capita growth to 0.7% a year; and in contrast, we estimate the same variables for the year 2020, for the 12, individually and taken together, if after 1998 their governments choose and maintain economic policies that promote per capita growth of 4.5% a year.

We estimate that 0.7% average per capita growth will leave 775 million people extremely poor in the 12 countries in 2020, while 4.5% growth will reduce that number by 479 million, by 62%, to 296 million. We also estimate that 4.5% per capita growth will lead the 12 to buy U.S. merchandise worth $144 billion dollars in 2020 (in 1994 U.S. prices), almost twice as much as the $73 billion we estimate they would buy following 0.7% growth. Finally, we estimate that reform and fast growth will raise imports of U.S. services by 530% instead of the 250% increase following from the failure to sustain reform.

Third, we briefly review the contrasting growth experience, from 1820 to 1992, of a number of countries to make three points, first: until several centuries ago, every nation in the world was mostly poor; second: many nations have achieved sustained rapid growth; and third: based on the observed achievements of such nations, from Britain to Canada to Malaysia to Mauritius to Chile, sustained rapid growth is possible for nearly every nation -- if its government introduces and sustains suitable economic policies.

Finally, we explain our choice of these 12 countries, and we explain the assumptions that went into our 1995-to-2020 projections of production, population, poverty, and trade. We recognize that our assumptions and simplifications are, though reasonable, open to question. Anticipating questions, our appendix provides enough information about our assumptions so readers can fully understand them and can, if they like and with little difficulty, substitute their own and revise the projections accordingly. However, while we know that alternative assumptions would give different numbers for 2020, we doubt that such revisions would weaken our two fundamental points:

- big reductions in poverty in developing nations and big increases in U.S. exports to those nations will occur only through sustained rapid growth, and

- sustained rapid growth will occur only if economic policies promote private competition and international competitiveness.

I. The Basis for Assuming That Economic Policies Determine Growth Rates

In 1995, Jeffrey Sachs and Andrew Warner examined the evidence that one kind of economic policy produces rapid growth rates in low-income countries while the absence of such policy produces slow growth.[1] Sachs and Warner considered the actual growth experience of 89 low-income nations between 1970 and 1989. They divided the 89 into two groups: the 15 whose economic policies kept their economies always open to international trade and competitiveness over the 20 year period, 1970-1989, and the 74 whose economic policies kept their economies always or sometimes closed. Sachs and Warner found that the 74 with always or sometimes closed economies averaged 0.7% per capita annual growth in GNP while the 15 nations with always open economies averaged 4.5% per capita annual growth.[2]

We have adopted the Sachs and Warner definition of "openness" to international trade. A country is judged "open" only if *none* of the following conditions apply:

1. Non-tariff barriers cover 40% or more of trade.
2. Average tariff rates exceed 40%.
3. A black market premium of 20% or more exists on the official foreign exchange rate.
4. The economic system is socialist or communist.

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[1] Jeffrey D. Sachs and Andrew Warner, "Economic Reform and the Process of Global Integration," *Brooking Papers on Economic Activity*, vol. 1, 1995, pp. 1-118.

[2] *Ibid.* p. 36. The nations in each category are listed in Appendix D, at the end of this paper.

5. The state maintains a monopoly on major exports.

Although they used only trade and foreign exchange policies to measure openness and competitiveness, they asserted that these criteria were accurate proxies for the whole policy spectrum. To wit:

> trade liberalization is usually just one part of a government's overall reform plan for integrating an economy with the world's economic system. Other aspects of such a program always include price liberalization, budget restructuring, privatization, deregulation, and the installation of a social safety net. Nevertheless, the international opening of the economy is the *sine qua non* of the overall reform process. Trade liberalization forces the government to take actions on the other parts of the reform program under the pressures of international competition. For these reasons, it is convenient and fairly accurate to gauge a country's *overall* reform program according to the progress of its trade liberalization.[3]

They continue: a reform program adequate to produce rapid, broad-based growth requires maintenance of policies and institutions that support market-based trade and financial flows as well as “institutional harmonization [with the world] with regard to trade policy, legal codes, tax systems, ownership patterns, and other regulatory arrangements."[4] So trade liberalization tends to force such harmonizations.

We also view openness to international trade as a proxy for the wide range of policies and institutions that must be established and maintained to create the incentive environment that produces sustained rapid growth. In the section below, titled "Policies and Institutions Providing Openness," we elaborate on the range and character of the prerequisite policies and institutions.

Concentrating on just the 32 always-open economies of 1970-90 (the 15 low-income countries cited above and 17 already high-income countries), Sachs and Warner made a second discovery: "countries with initially low per capita income levels grew more rapidly than the richer countries." Among only the initially low per-capita income countries, the pattern was maintained, the lower a nation's per capita income in 1970, the faster its growth rate through 1989.[5]

They concluded,

> convergence [between the per capita incomes of low and high income countries] can be achieved by *all* countries, even those with initial low levels of skills, as long as they are open and integrated in the world economy.[6]

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[3] *Ibid.*, p. 2.

[4] *Ibid.*, p. 2.

[5] *Ibid.*, pp.41-42.

[6] *Ibid.,* p. 41.

Proceeding from their conclusion, this paper estimates the magnitude of the benefits policy reform can deliver to the poorest of the poor, on the one hand, and to U.S. exporters, on the other hand. While we base our projections on the Sachs and Warner observations, we invite curious readers to look at some of the other recent scholarly examinations of the connections between policies and growth rates.[7]

In the next sections, we contrast the two scenarios of economic growth, poverty reduction, and trade growth between 1995 and 2020 for twelve countries which together account for most of the non-Communist world's "extremely poor," the people who survive on the local equivalent of one U.S. dollar or less a day. Excepting Indonesia, all of the 12 -- Bangladesh, Brazil, India, Kenya, Madagascar, Nigeria, Pakistan, Peru, the Philippines, Uganda, and Zambia -- were among the 74 slow-growers, 1970-1990, identified by Sachs and Warner.

We first project 2020 outcomes if the 12 countries fail to adopt and maintain -- or fall away from current use of -- "reform" policies that open their economies to international trade and competition. Our projections then assume that failure to adopt these economic policies will result in the anaemic 0.7% average per capita growth rate observed by Sachs and Warner for the 79 national economies sometimes or always closed during 1970-1990.

In our second scenario, we project 2020 outcomes if the 12 adopt and sustain "reform" policies, meaning avoiding the 5 specifics Sachs and Warner require for openness and making a very great many of the reforms that Sachs and Warner argue, as quoted above, that "openness" compels. We assume that such reforms will produce high output growth rates that can be estimated using initial GNP/capita levels and that averaged 4.5% annually for the Asian Tigers and others with consistently open economies from 1969 to 1990.

These contrasting scenarios provide quantitative indications of the importance to the world's poor of thorough and consistent economic policy reform. The 2020 contrasts also provide quantitative indicators of how big are the stakes for U.S. exporters in the policy choices of low-income countries.

One caution; we do not claim to be able to forecast the most likely economic figures for particular nations in 2020. Rather, our purpose is to contrast growth, poverty, and trade numbers in the intermediate future under two very different scenarios to indicate the importance of sustained economic policy reform and the consequences of non-reform -- and of backsliding from reform -- for the world's rich and poor alike. Although different assumptions about the parameters would change the 2020 results, the difference between the reform and non-reform scenarios would remain dramatic. That dramatic difference is the point of this paper.

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[7] For example: Tyler Biggs, *et. al, Africa Can Compete*, World Bank, 1996; David Dollar, "Outward Oriented Economies Really Do Grow More Rapidly: Evidence from 95 LDCs, 1976-1985,"*Economic Development and Cultural Change,"* 1992, vol. 40, 523-44; Richard A. Easterlin, *Growth Triumphant,* U. of Michigan Press, 1996; Gene M. Grossman, ed., *Economic Growth: Theory and Evidence*, Elgar, 1996; Robert E. Hall and Charles I. Jones, "The Productivity of Nations," NBER Working Paper # 5812, 1996; Takatoshi Ito, "*What Can Developing Countries Learn from East Asian Economic Growth,"* World Bank Annual Conference on Development Economics, 30 April 1997; Dani Rodrik, "Understanding Economic Policy Reform," *Journal of Economic Literature*, March 1996, 9-41; Michael Roemer, "Could Asian Policies Propel African Growth ?" Harvard Institute for International Development Discussion Papers, 1996. The World Bank's 1991 *World Development Report* also provides an excellent overview of the strong relationship between the policy environment and economic growth.

One other consideration: the "reform projections" assume annual growth rates on the order of 4.5% per capita. Recently, East Asian and other policy reformers have achieved growth several percentage points faster than 4.5% for many years. With sufficiently broad and rapid policy reform, some among the 12 might match those faster growth accomplishments and deliver even greater benefits to their low-income citizens as well as to U.S. exporters. The whole might also become greater than the otherwise sum of the parts. That is to say, if all 12 were to reform and accelerate growth, their combined market growth might be mutually re-enforcing.[8]

II. Contrasting Estimates of Outcomes in 2020

2020 with and without Rapid Growth: Table 1 presents figures for the combined totals of our twelve countries: Bangladesh, Brazil, India, Indonesia, Kenya, Madagascar, Nigeria, Pakistan, Peru, the Philippines, Uganda, and Zambia. Appendix B presents similar tables for the individual countries. Appendix A divides the 12 into groups and presents separate tables for the 7 "lower income" countries and for the 5 "lower middle-income" countries. The first column of Table 1 presents twelve-country totals for the base year, 1995, for GNP, poverty, and trade. The second column estimates outcomes in 2020 if the twelve fail to reform economic policies. The third column estimates outcomes in 2020 if the twelve soon reform, in the manner described above, and stick to the reforms through 2020.

Table 1
2020 Vision of All Twelve Developing Countries
without and with Reform
(Money figures in 1994 U.S. dollars)

	1995	2020 without reform	2020 with reform
Per capita GNP (PPP exchange rates)	$2,117	$2,691	$5,783
Population, millions	1,813	2,644	2,561
% extremely poor, $1/day	39.1%	29.3%	11.5%
# poor, millions	708	775	296
Per capita GNP (actual exchange rates)	$713	$874	$1,766
GNP ($ billions)	$1,292	$2,311	$4,523
Merchandise imports, cif ($ millions)	$157,536	$438,032	$888,376
Total from U.S. ($ millions)	$27,106	$73,274	$143,579
Service imports ($ millions)	$47,800	$176,838	$358,199
Total from U.S. ($ millions)*	$8,425	$29,122	$53,195

[8] Readers may wonder if the necessary capital is likely to be forthcoming if all 12 reform and accelerate together. While the requisite additional capital is large, we believe it could readily become available. The relevant numbers are: in 1994, some $96 billion in added capital would have been needed to bring investment up to 30% of GDP in all of the 12. If the 12 had all raised their saving by four percentage points of GDP in 1994, their saving would have been $52 billion greater. Between 1995 and 1996, foreign investment in developing nations rose by $60 billion. (Sources given in our Appendix.) We cannot pretend to know the various combinations of those three variables that would bring 4.5% growth. We do assert that some adequate combination thereof is a reasonable possibility -- given broad policy reform.

* U.S. services trade data was only available for Brazil, India, Indonesia, and the Philippines.
All numbers have been rounded. Consult individual country tables in Appendix B for further detail.
Refer to Appendix C for notes on sources and assumptions.

Based on Table 1, figures 3.1 through 3.6 graphically display the high stakes of successful reform. (Appendix B presents similar tables and similar figures for number of poor and for merchandise trade for each of the 12 countries.) They portray the contrasts between the outcomes for the twelve nations combined if, after 1998, they all fall back to the behaviors of 1970-89, averaging 0.7% per capita growth, and, alternatively, if they introduce and stick to the kinds of policies used by the 15 developing nations that achieved 4.5% per capita growth between 1970 and 1989.

- Figure 3.1 shows per capita output rising 173% (the average of about 4.5% per year) from $2,117 to $5,783 by 2020 instead of only 27% (an average of only 1% per year[9]) to $2,691.[10] (All the dollar projections in this paper are in 1994 U.S. prices.)

- Figure 3.2 shows total output of the 12 rising from $1.3 trillion to $4.5 trillion instead of to only $2.3 trillion (these projections convert to dollars using the World Bank *Atlas* method).

- Figure 3.3 shows the incidence of poverty falling from 39% to only 12% instead of 29%.

- Figure 3.4 shows the number of extremely poor people falling from 708 million to 296 million instead of rising to 775 million.

- Figure 3.5 shows U.S. merchandise exports rising from $27 billion to $144 billion instead of to only $73 billion.

- Figure 3.6 shows U.S. nonfactor service exports to the four countries for which data are available, Brazil, India, Indonesia, and the Philippines, rising from $8 billion to $53 billion instead of to only $29 billion.

What the Poor Have to Gain: So we warn that **without** sustained economic policy reform, these twelve nations:

- will be unable to increase per capita production more than 27% by 2020 and

- will be unable to reduce their poverty rates fast enough to counter population growth to 2.64 billion so will suffer an **increase by 67 million** in the number of extremely poor, to 775 million in 1995.

In contrast, we estimate that by 2020, **with** economic policy reform, broad and sustained, the twelve:

[9] The average 1% growth follows from the combination of the 2-3% growth rates many of the 12 countries seem to be achieving during 1995-97 that are here assumed to continue through 1998 followed by the 0.7% growth rate through the 21 years 1999-2020 expected if the 12 fall back, as has happened so often in the past, into the growth-suppressing policies of 1970-1989.

[10] These per capita GNP figures were calculated by the purchasing power parity methodology of the Penn-World Tables.

- will have raised per capita production 173% since 1995 and
- will have only 2.56 billion people, of whom only 12%, or 296 million will be extremely poor.

This means that economic policy reform can save 479 million people from the grinding poverty of life on less than $1 a day. Thus, policy reform and more rapid growth can save 62% of the 775 million who would remain extremely poor in 2020 following 0.7% average growth.

What U.S. Export Workers Have to Gain: The volume of every nation's trade grows at least as fast as does its total output.[11] Therefore, U.S. business owners and U.S. workers producing goods and services for export have a great stake in whether the output of these twelve nations, with some 40% of the low-income nations' populations, grows rapidly or slowly over the next quarter of a century.

We warn that in 2020, **without** economic policy reform:

- the twelve nations will buy only $73 billion dollars of U.S. merchandise.

- Brazil, India, Indonesia, and the Philippines, the only four of the 12 for which we have data on U.S. service exports, will purchase only $29 billion in U.S. services.

In contrast, we estimate that in 2020, **with** economic policy reform, broad and sustained,

- the twelve countries will buy U.S. merchandise worth $144 billion dollars -- nearly twice as much.

- Brazil, India, Indonesia, and the Philippines will buy a combined total of $53 billion of U.S. services -- again, nearly twice as much as without policy reform.

Policy Reform Is Vastly More Valuable than Other Aid: The United States delivers foreign assistance in many forms. Only a very small portion of recent U.S. foreign assistance has involved the policy dialogue and technical assistance that produce economic policy reform, accelerated growth, and rapid poverty reduction. Nevertheless, as the 2020 contrasts should make clear, policy reforms and rapid growth are vastly more effective poverty reducers than are all other forms of foreign aid combined.

The reason is not hard to see. Total U.S. economic assistance to low-income countries is, at most, $7 billion a year. But for just these 12 low-income countries, rapid economic growth can add $2,300 billion a year to their own production. The total of "Official Development Assistance" from all developed nations combined is less that $60 billion.

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[11] Between 1980 and 1993, world GDP averaged annual growth of 2.4%; world commodity output averaged annual growth of 1.6%, and the volume of world merchandise trade averaged annual growth of 4.6%. Calculated from: *International Trade: 1994, Trends and Statistics,* The General Agreement on Tariffs and Trade, Geneva, 1994, p.11. U.S. service exports have grown even faster than have U.S. merchandise exports due to "the emergence of a U.S. comparative advantage in the provision of services," changing the private service balance from zero in 1960 to an export surplus of $67 billion in 1995. Michael A. Mann, et. al., "U.S. International Sales and Purchases of Private Services." *Survey of Current Business*. November 1996, p. 70.

A small minority of the extremely poor can benefit substantially from their share of the $7 billion -- or even of the $60 billion -- if it is given in direct assistance to that little minority. But those benefits are only a pittance compared with the improved standard of living to be made possible each year by an additional $2,300 billion in the domestic production of the 12 countries considered here.

III. Every Nation Was Poor; Every Nation Can Become Non-poor

We now draw on history to make two points:

First, that just a few hundred years ago, most of the people in **all** the nations and regions of Earth were extremely poor. For the vast majority who were tilling the earth, life brought

> *No arts; no letters; no society; and worst of all, continual fear and danger of violent death; and the life of man, solitary, poor, nasty, brutish, and short.*[12]

And second, that, one by one, formerly poor populations have begun the climb leading eventually to the high incomes averaged in Europe, North America, and, increasingly, in East Asia and elsewhere. Often the climb has been by people who outsiders asserted, as of Korea and Taiwan in the 1950s and early 1960s, were incapable of such accomplishments.

This history now requires some elaboration as further support for our assertion that the people of the 12 nations we feature can also achieve high incomes -- if their policy makers opt for appropriate economic policies.

What Favorable Economic Policies and Growth Did for Us:

Table 2 contrasts the growth experiences, between 1820 and 1960, of the countries that were, respectively, developed, developing, and undeveloped, in 1960.

[12] Thomas Hobbes, *Leviathan*, part i, chapter 13.

Table 2
1820 - 1960 Growth of the Developed, Developing, and Undeveloped Countries' Estimated Per Capita Output in 1990 U.S. Dollars

Country	1820	1960	1820-1960 Percent Incr.
Developed in 1960			
Australia	$1,530	$8,540	458%
France	1,220	7,470	512%
Netherlands	1,560	8,080	418%
United Kingdom	1,760	8,570	387%
United States	1,290	11,190	767%
Undeveloped in 1960			
Bangladesh	530	550	4%
India	530	740	40%
Indonesia	610	1,130	85%
Pakistan	530	660	25%
Developing in 1960			
Brazil	670	2,340	249%
Czechoslovakia	850	4,610	442%
Japan	700	3,880	454%
Spain	1,060	2,270	114%

Source: Angus Maddison, "Monitoring the World Economy, 1820-1992." OECD, Development Centre. 1995, pp. 194-205.

The salient fact of the year 1820, as shown in Table 2, is that all the countries of the world had very low average incomes -- measured in 1990 U.S. prices -- in 1820. Only the U.K. had per capita production above the range of $500-$1560 within which every other nation fell. Not only were average real incomes low, but extreme poverty was commonplace. Nearly everyone in the world was poor in 1820 and suffered the high infant mortality, high morbidity, short life expectancy, and pinched material lives of the very poor.

When labor productivity was low in every country of the world, the size of each country's total output depended mostly on the size of the country's population. As a result:

- China produced 29% of the world's total output in 1820
- India produced 16%,
- France, the United Kingdom, and Russia each produced 5%,
- the United States produced less than 2%.[13]

And population made the difference: in 1820, China had some 380 million people, India had 210 million, France 31 million, the United Kingdom 21 million, and Russia 45 million, while the United States had only 9 million.[14]

Between 1820 and 1960, Europe, Australia, New Zealand, Canada, and the United States grew rapidly. That growth, that development, had, by 1960, lifted most residents of what are now the countries of the Organization for Economic Cooperation and Development (OECD) to at least modest affluence with national per capita production of $7,500-$11,200. Continued growth in the OECD countries has lifted per capita production above $20,000 and has reduced to near zero the number of their people living in "extreme poverty" as defined here, living on less than $365 per year or $1 per day.

In contrast, most of the other countries of the world remained undeveloped, and most of their citizens remained poor throughout the years 1820-1960. Table 2 shows those sad numbers for a few of the undeveloped nations for which estimates of per capita output are available for both 1960 and 1820. Per capita production rose only from the range $530-610 to the range $550- $1,130.

Respecting the welfare of the poor in countries where per capita incomes rose to the range $550-$1,130, one must remember that in every nation, a substantial portion of output went to government, to investment, and to the upper income groups. So the portion of output received by families for consumption left most people extremely poor, still living on under the local equivalent of $1 per day.

Table 2 also shows that, by 1960, some countries, like Brazil, Czechoslovakia, Japan, and Spain, starting much later than northern Europe and North America, had begun to grow rapidly. Their per capita production rose, mostly in the later decades, from $670-$1,060 in 1820 to $2,270-$4,610 in 1960.

Throughout the period 1820-1960, the future OECD members needed few of the economic policy reforms the slow growers still need. Emerging from mercantilism, the future OECD members imposed upon themselves few of the oppressive controls that, beginning under colonialism, were quickly reinforced and elaborated following independence in Latin America, Asia, and Africa. Also, during the 1800s and early 1900s, the future OECD members had already in place, or were creating, largely corruption-free institutions of land tenuring, fiduciary protection, and predictable, consistent, transparent, and expeditious judicial systems most of the slow-growers still lack. The future OECD members consistently encouraged private entrepreneurs and large-scale, competitive, efficient production that the slow growers discouraged by their choices of policies and institutions.

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[13] Angus Maddison, Monitoring the World Economy: 1820-1992, Paris, France; the Development Centre of the Organization for Economic Co-Operation and Development, 1995, p. 30.

[14] *Ibid.*

What Policy Reform and Growth Are Doing for the Tigers: As Table 3 shows, in 1960, most of the citizens of those countries we now call "tigers" were still poor because production per person remained very low. But Table 3 also shows how very fast the tigers have grown since 1960. In fact, the tigers have averaged faster growth, 1960-1992, than the United States and the countries of Europe ever experienced in even one year between 1820 and 1960. We assert that the tigers' economic policy reforms of the 1960s were the determining change that converted them from undeveloped to developed. In 32 years, per capita production rose from $1,300-$3,880 to $10,010-$19,500. Already, in the tigers as earlier in the members of the OECD, growth has substantially reduced the number of extremely poor people; almost none of their people now live on less than one dollar a day. Of further interest to many Americans, the tigers' rapid growth has substantially increased their foreign trade including their trade with the United States.

Table 3
1960 - 1992 Growth of the Developing and Underdeveloped Countries'
Estimated Per Capita Output in 1990 U.S. Dollars

Country	1960	1992	1960-1992 Percent Incr.
Fast growing			
Japan	$3,880	$19,500	403%
South Korea	1,300	10,010	670%
Taiwan	1,400	11,590	728%
Developing			
Thailand	1,030	4,690	355%
Indonesia	1,130	2,750	143%
Brazil	2,340	4,860	108%
Underdeveloped			
Bangladesh	550	720	31%
Egypt	710	1,930	172%
India	740	1,350	82%
Pakistan	660	1,640	148%
The Philippines	1,490	2,210	48%

Source: Angus Maddison, "Monitoring the World Economy, 1820-1992." OECD, Development Centre. 1995, pp. 196-206.

In contrast, since 1960, because they failed to grow rapidly, the still underdeveloped countries such as those shown in Table 3 actually increased the numbers of their extremely poor and increased trade much more slowly than did the tigers. Because of repressive economic policies, these nations suffered slow growth, and their output per person rose only from $550-$1,490 in 1960 to $720-$2,210 in 1992.

Because of the enormous changes in so many nations between 1860 and 1992, their ranking by output size changed dramatically. China, with 21% of world population was down from 29% in 1820 to 13% of

world output while the U.S., with under 5% of world population was up from 2% to 20% of world output, and Japan, with only 2.3% of world population was up from 3% to 8.5% of world output.[15]

Productivity has replaced population as the major determinant of each nation's place in the world's economic hierarchy.

Domestic Policies -- Not Foreigners -- Determine Growth: Based on the highly visible evidence of the world's nations since 1960, as reported by Sachs and Warner and by many others (cited above in footenote 7), this report assumes that the difference between national economic success and failure has been, aside from wars, mostly a matter of the economic policies chosen by each nation.

In 1960, the countries that became new fast growers and the countries that remained undeveloped looked out on a world economy in which most of the demand for imports and supply of exports came from the developed nations. Over the next three decades, the world economy offered both groups of initially undeveloped and underdeveloped nations the same opportunities to buy, sell, invest, and obtain foreign investments. There were no differences in the international opportunities available to the tigers-to-be and to the countries that remained undeveloped.

So one premise of this report is that outside factors do not explain why some poor nations achieved rapid growth and rose from deep poverty in 1960 to modest affluence in 1995 while other poor nations experienced slow growth and increases in numbers of extremely poor people.

A second premise is that economic policy differences between initially poor nations do explain the differences in growth and poverty reduction. Some of the initially poor nations responded to opportunities in world markets and to their own resource endowments with domestic economic policies that made them tigers and less and less poor. Others responded with economic policies that have kept them largely poor.

While this report reasons from these premises into the future, it does not elaborate on the evidence or analysis of the historical experience behind those conclusions. Neither do we try to explain the vested interests, historical precedents, inertia, dogmatic error, and other causes of the existence and durability of the policies and institutions that suppress growth.

Policies Providing Openness: The policy differences between open and closed economies are many; so the following is only a partial listing of the reforms required to produce rapid broadly based growth. Note that the many additional things governments should do well are as important as the many things governments should stop doing.

Governments doing fewer of the things they do but ought not to do:

- freeing the exchange rate to respond to market forces,
- converting non-tariff barriers to tariffs and reducing tariff levels,
- removing price ceilings,

[15] Maddison, *op.cit.,* p.30.

- ending subsidies to parastatals,
- removing monopoly protections of parastatal and private producers,
- ending discriminatory taxes on farm families,
- minimizing barriers to entry of new employers, domestic and foreign,
- reducing government deficits to levels that do not cause high inflation,
- reducing monetary growth to rates that do not cause inflation,
- repealing laws that discourage new hires and new investment by private employers,
- ending directed credit and allowing markets to determine interest rates and investment direction.

Governments doing more of the things they fail to do but ought to do:

- revising tax legislation for efficiency, equity, and revenue,
- reforming budget procedures to assure maintenance of, and to increase returns to, public investments,
  including human as well as physical investments,
- civil service reform,
- introducing commercial codes,
- introducing fiduciary supervision of financial entities,
- creating honest courts whose operations are transparent, predictable, and efficient,
- assuring security of property titles,
- supporting an honest police force,
- creating an independent central bank.

Of course, none of the Sachs and Warner 15 fast growers would achieve perfect scores in all these areas (nor would most OECD members), but the scores for the 15 would be significantly higher than for the 74. And that is the difference that we assume explains the difference in growth rates.

Another Measure of Policy Performance: James Gwartney, of Florida State University, and his colleagues, Robert Lawson and Walter Block, have for several decades been measuring the economic policy performance of many nations. The list in our preceding section is representative of the policies the Gwartney team has looked for. They have graded each country on a score of 0 - 10 and have done so for some countries for every year 1975, 1980, 1985, and 1990.

They provide such scores for seven of our 11 slow-growing countries (the 12th, Indonesia, has introduced partial reforms) and for 10 of Sachs and Warner's 15 ever-open economies. Their scoring is consistent with the Sachs and Warner distinction between open and not-always open economies.

- The average score for the seven: India, Nigeria, Kenya, Brazil, the Philippines, Pakistan, and Peru, for 1975, 1980, and 1990 was 3.7.

- The average score for the 10 Sachs and Warner ever-open: Greece, Hong Kong, Indonesia, Korea, Malaysia, Mauritius, Portugal, Singapore, Taiwan, Thailand, for the same years was 5.6.[16]

[16] James Gwartney *et al., Economic Freedom of the World: 1975-1995*, The Fraser Institute, Vancouver, Canada, 1996, various country pages, 124-215.

IV: The Other Assumptions behind Our 2020 Projections

Selecting the 12 Countries Treated in This Report: The World Bank has estimated that, outside the still-communist nations, some 900 million people lived in extreme poverty in the early 1990s.[17] These unfortunates are scattered among some 100 countries. To make this report manageable, we decided to limit our projections to a short list of non-communist countries that together had the great majority of the extremely poor.

We began by estimating the number of extremely poor in each country in the world. Table 4 shows our calculations for the 20 countries we found to have the most extremely poor people in the early 1990s. For each of the 20, Table 4 first presents World Bank estimates of the incidence of extreme poverty for the most recent years (mostly 1992-94, but some earlier) for which data are available. Table 4 next lists 1992 populations (1992 was chosen as the middle of the incidence-estimate years in the first column). Then incidence times population gives estimates of the number extremely poor in the early 1990s. Because of differences in incidence data years, the country estimates are not strictly comparable. However, we judged them adequate for arraying countries and did so on that basis.

[17] World Bank, *Poverty Reduction and the World Bank: Progress and Challenges in the 1990s.* May 1996. Page 4.

Table 4
The Twenty Countries with the Greatest Number of Poor

	Country	Survey Year	Poverty Rate (percent)	Population ('92) (millions)	Approximate Number of Poor (millions)
*	India	1992	52.5	882.3	463.2
	China	1993	29.4	1165.0	343.0
*	Bangladesh	1994 est	50.0	114.3	57.2
*	Brazil	1989	28.7	153.8	44.1
*	Nigeria	1992-93	28.9	101.9	29.5
*	Indonesia	1993	14.5	184.4	26.7
	Ethiopia	1981-82	33.8	54.8	18.5
*	Philippines	1988	27.5	64.3	17.6
*	Pakistan	1991	11.6	119.3	13.8
	Mexico	1992	14.9	85.0	12.7
*	Kenya	1992	50.2	24.7	12.4
	Nepal	1984-85	57.6	19.9	11.5
*	Peru	1994	49.4	22.4	11.0
	South Africa	1993	23.7	38.8	9.2
*	Madagascar	1993	72.3	12.4	9.0
*	Uganda	1989-90	50.0	17.5	8.7
*	Zambia	1993	84.6	8.7	7.3
	Guatemala	1989	53.3	9.7	5.2
	Niger	1992	61.5	8.2	5.0
	Tanzania	1993	16.4	27.2	4.5

* One of the twelve countries selected for this study.

Note: This table provides a ranking of countries based on the estimated number of poor in each country. Estimates of poverty, here defined as the percent of the population living on less than $1/day, in purchasing power parity (PPP) terms, were obtained by the International Economics Department of the World Bank from the most recent, reliable surveys available. The approximate number of poor is calculated as the poverty rate times the World Bank's 1992 estimate of population.

With these numbers, we found that we could limit our projections to just 12 of the 20 while still covering some 80% of all the people living in extreme poverty in non-communist nations. We picked the 12 from among the 20 by choosing only those

- with more than seven million extremely poor in the early 1990s,
- that were not still communist,
- where USAID has been, is, or might be involved in policy reform, and
- where both broad consistent policy reform and erratic reforming and severe backsliding are possible, with the latter possible even for the countries that have recently implemented broad reforms.

We dropped Mexico as not likely to backslide, and Ethiopia, Nepal, and South Africa as unlikely to be able to maintain reforms consistently through 2020. (We lacked incidence estimates for Sudan and Zaire and for North Korea and Vietnam, four likely to qualify for the top 20 by number of extremely poor. But the first two are extremely unlikely reformers, and the latter two are communist; so none of them would have qualified for our use even if we had incidence estimates.) We kept in Indonesia, the Philippines, India and others with good recent reform records but long histories of episodes of backsliding. Of these recent reformers, we must note that stabilization reforms have proved easier than structural reforms that remove the multitudinous barriers to the creation and growth of private enterprise. Without the latter reforms, we judge these countries unlikely to achieve a 4.5% growth average over the long haul of 1998 to 2020.

The 12 fall into two groups:

- seven nations, Bangladesh, India, Nigeria, Kenya, Madagascar, Uganda and Zambia, classified as low-income economies by World Bank criteria, all of which have 1995 per capita GNPs (measured at PPP exchange rates) of less than $1,600 and with incidence of extreme poverty between 30 and 85%; these seven account for two thirds of the non-communist poor, 600 million of the 900 million people subsisting on a dollar or less per day, and

- five nations, Brazil, Indonesia, Pakistan,[18] Peru and the Philippines, classified as middle-income economies by World Bank criteria, all of which have per capita GNPs between $2,000 and $6,000 and with incidence of extreme poverty between 11% and 50%; these five account for some 120 million, 13%, of the non-communist extremely poor.

[18] Pakistan's classification here is not the Bank's. The Bank classifies Pakistan as a low-income economy by its World Atlas per capita GNP criteria. However, Pakistan's per capita GNP by purchasing power parity calculation and its estimated 12% incidence of extreme poverty led the authors to include it with the four lower-middle-income countries.

Table 5
Comparative Country Statistics

	Per Capita GNP (purchasing power parity exchange rates)	Incidence of Extreme Poverty	Total Population (millions)	Number of Extremely Poor	Growth Rate with Reforms, 1998-2020
12 Countries	2117	39%	1813	708	4.5
7 Lower Income Countries	1317	49%	1229	605	5.3
Bangladesh	1370	46%	118	55	5.0
India	1340	51%	929	473	5.0
Nigeria	1145	30%	112	34	5.3
Kenya	1358	61%	27	17	5.0
Madagascar	643	75%	15	11	6.1
Uganda	1516	46%	20	9	4.8
Zambia	838	87%	8	7	5.7
5 Lower Middle-Income Countries	3799	18%	584	103	3.7
Brazil	5600	24%	159	38	3.1
Indonesia	3805	12%	197	25	3.6
Pakistan	2143	10%	136	14	4.4
Peru	3837	46%	24	11	3.6
The Philippines	2874	22%	68	15	4.0

Sources and methodology of the data in this table are discussed in Appendix C.

Thus, we ended with wide geographic coverage: of the seven low-income nations, two in South Asia, one in West Africa and four in East Africa; of the five lower middle-income nations, one in South Asia, two in East Asia, and two from the two coasts of Latin America.

In Brief, Our Remaining Assumptions: While Appendix C presents the details about our sources and assumptions, we offer here a shorthand list of the remaining assumptions used to project to 2020 from initial 1995 numbers:

- The 1995 GNP per capita growth rates in purchasing power parity (PPP) dollars are the rates reported in the May 29, 1996 issue of the World Bank's "Per Capita Income Guidelines for Operational Purposes." Growth rates for 1996 were taken from recent IMF Staff Reports for each country. Growth rates for 1997 and 1998 were assumed to be the arithmetic average of 1995 and 1996 growth rates.

- In the slow growth scenario, 1999-2020, GNP per capita growth was assumed to be 0.7% as calculated by Sachs and Warner. In the fast growth scenario, 1999-2020, growth of per capita GNP was assumed to be determined by the logarithmic regression equation (discussed in

Appendix C) estimated by Sachs and Warner, ranging from 3.1% for Brazil to 6.1% for Madagascar.

- Population was assumed to grow, in the slow-growth case, at the baseline rates predicted by the United Nations in their latest population projections for each country and, in the fast economic-growth case, at rates half-way between the U.N. baseline rate and the U.N.'s lower population growth rate for each country.

- Starting with the incidence of poverty in the survey year as presented in Table 5, the incidence of poverty was assumed to fall 1% for every 1% increase in per capita GNP.

- The number of estimated extremely poor is simply poverty incidence times population .

- The 2020 estimates of per capita GNP by the World Bank Atlas method (mostly, current market exchange rates) assume the same 1995-2020 percentage increases as for the 2020 per capita estimates at PPP exchange rates.

- Total GNP in 2020 is per capita GNP (WB *Atlas* method) times population.

- Merchandise import data for 1995 is from the 1996 edition of the IMF's *Direction of Trade Statistics Yearbook*. 1995 U.S. merchandise exports are from the U.S. Department of Commerce, *Survey of Current Business;* 1995 total country nonfactor service imports are from the 1996 edition of the IMF's *Balance of Payments Statistics Yearbook*; and 1995 U.S. nonfactor service exports are from the November 1996 edition of the *Survey of Current Business.*

- Total merchandise imports were calculated by assuming their share of GNP would be 50% higher in 2020 than in 1995. U.S. merchandise exports were calculated by assuming that they grew at the same rate as the recipient country's total merchandise imports. Total nonfactor service imports were calculated by assuming their share of GNP would double between 1995 and 2020. U.S. nonfactor service exports were calculated they grew at the same rate as the recipient's total nonfactor service imports.

Appendix A: The Country Cases

This section presents the 1995 and the 2020 estimates for each of the variables for the two categories of countries included in this model.

A.1 Seven Lower Income Countries: Bangladesh, India, Nigeria, Kenya, Madagascar, Uganda, and Zambia.

These countries are identified as low-income economies by World Bank criteria, with 1995 per capita GNPs between $640 and $1,330 (PPP estimates) and with incidence of extreme poverty between 30 and 85%. These seven account for two thirds of the non-communist poor, 600 million of the 900 million people outside Communist nations subsisting on a dollar or less per day.

Table A-1 presents projections to 2020 for the seven countries combined under the alternative assumptions. Assuming that failure, after 1998, to sustain the reform policies described by Sachs and Warner continues to produce average annual per capita growth of 0.7%, the seven poor countries, in 2020 will:

- have 1.79 billion people of whom 661 million, or 37%, will be extremely poor,
- have per capita GNP of only $400, and
- import $13.2 billion in U.S. merchandise.

On the other hand, if these seven countries are able to sustain reforms after 1998, then in 2020, they will:

- have 239 million who are extremely poor, only 14% of their combined population,
- have per capita GNP of $1,012, and
- import $32.5 billion in U.S. merchandise.

A.2 Five Lower Middle-Income Countries: Brazil, Indonesia, Pakistan, Peru, The Philippines.

These countries are identified as lower-middle-income economies by World Bank criteria with per capita GNPs between $2,130 and $5,400 (PPP estimates) and with incidence of extreme poverty between 11% and 50%. They account for some 120 million, 13%, of the non-communist nations' extremely poor residents.

Table A-2 presents projections to 2020 for these five combined under the alternative assumptions. While the average income levels in these five countries are higher than in the previous seven, their high incidence of poverty makes them important reform cases. Assuming that failure to sustain the reform policies described by Sachs and Warner continues, after 1998, to produce average annual per capita growth of 0.7%, these five countries, in 2020 will:

- have 854 million people of whom 113 million, or 13%, will be extremely poor,
- have per capita GNP of $1,869, and
- import $60.0 billion in U.S. merchandise.

On the other hand, if these five countries are able to sustain reforms after 1998, then in 2020, they will:

- have 57 million who are extremely poor, only 7% of their combined population,
- have per capita GNP of $3,348, and
- import $111.1 billion in U.S. merchandise.

Appendix B: Individual Country Cases

Individual country tables and figures are presented on the following pages. Each table is formatted as in Appendix A: the base year, 1995, is presented in the first column, the second column estimates outcomes in 2020 in the absence of economic policy reform after 1998, and the third column estimates outcomes in 2020 if policy reforms are adopted and sustained after 1998 through 2020. The accompanying figures are derived from each of the country tables.

Seven Countries

Bangladesh	Table B-1	Figure B-1
India	Table B-2	Figure B-2
Nigeria	Table B-3	Figure B-3
Kenya	Table B-4	Figure B-4
Madagascar	Table B-5	Figure B-5
Uganda	Table B-6	Figure B-6
Zambia	Table B-7	Figure B-7

Five Countries

Brazil	Table B-8	Figure B-8
Indonesia	Table B-9	Figure B-9
Pakistan	Table B-10	Figure B-10
Peru	Table B-11	Figure B-11
The Philippines	Table B-12	Figure B-12

Appendix C: Technical Notes, Sources, and Assumptions behind the Projections

This appendix presents the assumptions behind each of the statistics projected into 2020 in Table 1 and in all the country tables in Appendix A and Appendix B. We selected these assumptions to keep the projections as simple as possible yet readily transparent so users can easily substitute other assumptions they deem more appropriate.

We do not suggest that these necessarily simple assumptions will yield projections close to actual outcomes in 2020. Rather, these assumptions are offered to provide reasonable estimates in order to contrast the very different outcomes which result from supportive and suppressive economic policies.

1995 Per Capita GNP: The World Bank's *1996 World Development Report* provides estimates of 1994 per capita GNP in 1994 U.S. dollars in purchasing power parity terms in Table 1, p.188, of the section, "Selected World Development Indicators." Per capita GNP for 1995 is derived by applying the 1995 GNP per capita (PPP) growth rate, as reported in the May 29, 1996 issue of the World Bank's "Per Capita Income Guidelines for Operational Purposes." Growth rates for 1996 were taken from recent IMF Staff Reports for each country. Growth rates for 1997 and 1998 were assumed to be the arithmetic average of 1995 and 1996 growth rates.

2020 Per Capita GNP: The experiences of the 15 always-open countries and of the 74 sometimes-closed countries over the years 1970-1989 are the basis for the growth rates under our two scenarios of reform and no reform. In the slow growth scenario (no reform), 1999-2020, GNP per capita growth was assumed to be 0.7% as calculated by Sachs and Warner. In the fast growth scenario (reform), 1999-2020, per capita GNP was assumed to be determined by the following logarithmic regression equation estimated by Sachs and Warner:

$$GROWTH = 14.913 - 1.368 * \ln (GNPPC)$$

where: GROWTH is the average annual real GNP per capita growth rate
GNPPC is the 1996 GNP per capita level in PPP U.S. dollars

These growth rate estimates ranged from 3.1% for Brazil, with a 1996 per capita GNP of $5,669, to 6.1% for Madagascar, with a 1996 per capita GNP of only $635.

The Incidence of Extreme Poverty in a Base Year: The World Bank's International Economics Department provided estimates of the incidence of extreme poverty, as defined by the percent of the total population earning less than $1 per day (using internationally comparable PPP exchange rates).[19] The year to which each country estimate applied ranged from 1988 to 1993 and is shown in Table 5.

The Incidence of Poverty in 1995 and in 2020: To get from that initial figure to the incidence of poverty in 1995 and then in 2020, we used the relationship observed by the World Bank's South Asia Regional Office, that during the 1980s, a one percent increase in per capita gross domestic product (GDP) was

[19] Although no official poverty rate was provided for Bangladesh, a 1996 World Bank publication, *Bangladesh: From Stabilization to Growth*, estimated that a comparable poverty incidence would be approximately 50% for 1992. The World Bank desk economist for Bangladesh confirmed that this was a sufficiently accurate estimate.

accompanied by a drop in poverty incidence averaging between 1 and 3 percent.[20] Drawing on that particular observation for these particular countries during those particular years, we made projections to 1995 and then to 2020 assuming that the incidence of extreme poverty fell 1% for every 1% increase in real per capita GNP in every year for each of our 12 countries.

Population in 1995 and in 2020: Population was assumed to grow, in the slow-growth case, at the baseline rates predicted by the United Nations in their latest population projections for each country and, in the fast-growth case, at rates half-way between the U.N. baseline rate and the U.N.'s lower population growth rate for each country, as published in the United Nations's biennial *World Population Prospects* (October 1996 revision).[21]

2020 Per Capita GNP at World Bank *Atlas* Exchange Rates: Since GNPs are still most commonly cited using World Bank *Atlas* exchange rates, we needed per capita 2020 GNP at those rates. We calculated it by assuming its percentage increase to be the same as for the PPP estimates of per capita GNP.

GNP in 2020: the dollar value of GNP in 2020 in 1994 U.S. prices is simply 2020 per capita GNP (World Bank *Atlas* exchange rates) times 2020 population estimates.

Merchandise and Nonfactor Service Imports in 1995: Total merchandise import data for 1995 is from the 1996 edition of the IMF's *Direction of Trade Statistics Yearbook*. 1995 U.S. merchandise exports are from the U.S. Department of Commerce, *Survey of Current Business;* 1995 total country nonfactor service imports are from the 1996 edition of the IMF's *Balance of Payments Statistics Yearbook*; and 1995 U.S. nonfactor service exports are from the November 1996 edition of the *Survey of Current Business.*

Merchandise and Nonfactor Service Imports in 2020: Total merchandise imports were calculated by assuming their share of GNP would be 50% higher in 2020 than in 1995. U.S. merchandise exports were calculated by assuming that they grew at the same rate as the recipient country's total merchandise imports. Total nonfactor service imports were calculated by assuming their share of GNP would double between 1995 and 2020. U.S. nonfactor service exports were calculated they grew at the same rate as the recipient's total nonfactor service imports. This assumes that U.S. technical leadership will be sufficient to offset the downward trend in U.S. GNP as a percent of Gross World Product.

Getting the "Needed" Investment of 30% of GDP: From the experience of Korea, Thailand, Mauritius, etc., we assume that if Gross Domestic Investment (GDI) reaches 30% of GDP with market forces directing most of it, that 4.5% per capita growth -- or faster -- becomes a reasonable prospect. The Statistical Appendix table titled "Structure of Demand" or "Structure of the Economy: Demand" in World Bank annual *World Development Report*s (WDRs) present estimates of GDI and of Gross Domestic Savings (GDS) as percentages of GDP.

Estimating the $96 Billion Investment Shortfall in 1994: Using Table 13, "Structure of the Economy: Demand," in the 1996 WDR, we calculated percentage "shortfall" as the difference between each

[20] "Poverty Reduction and the World Bank. Progress in Fiscal 1994." The World Bank. 1995.

[21] United Nations, Department of Economic and Social Information and Policy Analysis, Population Division.

country's actual GDI/GDP (e.g., 7% for India with GDI 23% of GDP) and multiplied that percentage times our estimate of the relevant country's 1995 GNP to get dollar shortfall ($21.4 billion for India).

Possible Sources of $96 Billion in Additional Investment: The World Bank recently reported that between 1995 and 1996, foreign investment in developing countries rose by $60 billion. We calculated the dollar value of an increase in GDS by four percentage points of GDP in each of the 12, by simply taking 4% of $1,292 billion, the combined 1995 GNP of the 12 shown above in our table 1, getting $52 billion as the size of such an increase had it happened in 1994.

Appendix D: Open and Closed Economies according to Sachs and Warner

Sachs and Warner defined countries as either being open or closed according to the criteria listed on page 2 of this report. They found that very few developing countries maintained the open policies associated with rapid economic growth.

Fifteen Consistently Open Countries Between 1970 and 1989:

Barbados, Cyprus, Hong Kong, Malaysia, Mauritius, Singapore, Greece, Portugal, Thailand, Yemen, Taiwan, Jordan, Ireland, South Korea, and Indonesia.

Thirty-Five Countries which were Not Consistently Open Between 1970 and 1989:

Argentina, Benin, Bolivia, Botswana, Brazil, Cameroon, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Gambia, Ghana, Guatemala, Guinea, Guinea-Bissau, Guyana, Honduras, Jamaica, Kenya, Mali, Mexico, Morocco, Nepal, Nicaragua, Paraguay, Peru, Philippines, South Africa, Sri Lanka, Tunisia, Turkey, Uganda, Uruguay, and Zambia.

Thirty-Six Countries which were Closed in 1989:

Algeria, Angola, Bangladesh, Burkina Faso, Burundi, Central African Republic, Chad, China, Congo, Cote d'Ivoire, Dominican Republic, Egypt, Ethiopia, Gabon, Haiti, India, Iran, Iraq, Madagascar, Malawi, Mauritania, Mozambique, Myanmar, Niger, Nigeria, Pakistan, Papua New Guinea, Rwanda, Senegal, Sierra Leone, Somalia, Syria, Tanzania, Togo, Zaire, Zimbabwe.